

**NEW HEMIPTERA FROM REDWOOD
(MIRIDAE, CICADELLIDAE).**

By BRUNSON P. BLIVEN,¹ Eureka, Calif.

One day in September, 1947, the writer noticed the feeding punctures of some insect on the green cones of redwood trees growing in his yard at Eureka. This city is located on the shores of Humboldt Bay in the redwood belt of northern California. Upon going forth that evening to examine the trees with the aid of a flashlight, large numbers of pink-colored mirids (*Phytocoris sequoiae* n. sp.) were seen to be flying about and crawling over the twigs and cones of the trees. Unlike many other nocturnal mirids, they did not seem to be attracted to the light. Since that time a special effort has been made to collect more specimens and during the course of this work, in Eureka and in the surrounding area, a number of new species of Hemiptera have been discovered on redwood. Sufficient collecting has been done in every case to definitely establish the host plant relationship. Eight of these species are here presented. Others will follow. Types and allotypes of all species are to be deposited in the United States National Museum, Washington, D. C., paratypes to be retained by the author.

MIRIDAE

***Dichrooscytus sequoiae* n. sp.**

Resembles *D. viridicans* Knigt. in its almost unicolorous green aspect but differs in size and relative proportions. Rostrum reaching sixth or seventh ventral segment.

Male. Length 4.48 mm., width 1.72 mm. Head: width, 1.11 mm., vertex .50 mm. Rostrum, length 2.15 mm., reaching or surpassing sixth ventral segment. Antennae: segment I, length .40 mm., II, 1.80 mm., III, .85 mm., IV, .56 mm. Pronotum, length .70 mm., width at base 1.32 mm.

Color: leaf-green in life, partially fading to yellow with the drying of the specimen. Vestiture: upper surface sparsely covered with mixture of many black and a few paler, deciduous hairs, these becoming thickest and longest on head and cuneus. Hemelytra without markings, membrane lightly infuscated, veins yellow.

Female. Similar to male except in size. Length 4.80 mm., width 1.78 mm. Head: width 1.18 mm., vertex .56 mm. Rostrum, length 2.16 mm., reaching base of genital segment. Antennae: segment

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I, length .42 mm., II, 2 mm., III, .50 mm., IV, .90 mm. Pronotum: length .70 mm., width at base 1.36 mm.

Host plant: redwood, *Sequoia sempervirens* (Lamb.) Endl. Single-brooded, nymphs appear in July.

Holotype (male): Shively, Humboldt Co., Calif., IX.9.51. Allotype (female): same locality, XI.2.52. Paratypes: 10 males, 10 females from type locality, Aug. 24th to Nov. 16th. One female paratype, Grizzly Cr., Humboldt Co., Calif., X.1.50. All collected on the host plant by the author.

Phytocoris yuroki n. sp.

Near *P. onustus* V. D. but readily differentiated by the distinct markings, the complex pubescence and genitalic characters. The yellow areas are pale green in life.

Male. Length 6.40 mm., width 2.24 mm. Head: width .99 mm., vertex .35 mm. Rostrum, length 2.72 mm., reaching sixth ventral segment. Antennae: segment I, length 1.21 mm., II, 2.48 mm., III, 1.26 mm., IV, .96 mm. Pronotum: length .96 mm., width at base 1.82 mm.

Robust, testaceous, heavily mottled with fuscous, imparting a dark brownish black aspect. Dorsum rather thickly beset with unusually coarse, pale to fuscous, simple hairs, these longest on pronotum. Surface clothed with sericeous golden pubescence and white scale-like hairs. Collum with central, sagittate, pale yellow spot outlined by fuscous lines on either side and reddish brown in front; the pale area on either side crossed by two longitudinal vittae: an incomplete one followed by a heavy oblique fuscous ray extending from angle of eye to collar. A pale, lunate spot on either side of vertex, outlined by arcuate fuscous lines, their convexities nearly meeting on the median line. Oblique fuscous lines on frons found in allied forms here becoming confluent. A small spot above base of each antenna and basal third of jugae, pale yellow. Tylus fuscous with apex testaceous and a prominent light yellow spot in the middle. Jugae and lorae largely fuscous, tips pale. Front and sides of head clothed with conspicuous long, pale hairs. Underside of head largely pale yellow. A yellow spot behind each eye at emargination surrounded by a fuscous blotch which invades adjacent area of propleura. Basal joint of antenna fuscous above, mottled with yellow spots, largely pale yellow beneath, bearing a few long pale bristles and many recumbent ones. Second joint fuscous with yellow annulus at base, third fuscous, narrowly pale at either end, fourth fuscous. Rostrum testaceous, tip be-

coming fuscous.

Pronotum rather thickly beset with pale and fuscous, coarse, stiff hairs, these longest on collar, lateral and basal margins. Surface clothed with sericeous golden yellow pubescence and tufts of white, scale-like hairs. Disc brownish testaceous, pruinose, lateral margins and narrow vermiculate lines in region of calli, dark fuscous. Sub-basal line consisting of four fuscous spots bearing conical patches of black setae and interrupted at middle by pale spot; the fuscous areas tending to fuse. Base pale, ornamented with tufts of white scale-like hairs. Collar reddish brown, a pale spot at middle, which extends back between and in front of calli. Propleura dark fuscous, lower margin bordering coxa, a spot above and in front of coxal cleft and xyphus, pale yellow. Mesoscutum broadly exposed, mottled with fuscous; a triangular blackish fuscous spot at each lateral angle, median pale line continuing upon scutellum. Tip of scutellum broadly pale behind blackish fuscous spot on either side of pale median line, the latter overlaid with white scale-like hairs disposed in patches. Vestiture of deciduous, pale yellow pubescence and long fuscous hairs. Sternum and pleura dark fuscous, basalar plate fusco-testaceous, coxal areas and ostiolar peritreme pale yellow.

Hemelytra pale testaceous, mottled with fuscous, bearing many pale and fuscous hairs intermixed with sericeous golden pubescence and ornamented with patches of white, scale-like hairs. Clavus mottled and darkened with fuscous, pale along the commissure. Basal third of corium fuscous, enclosing many round, pale spots. A polished area at the middle separated by a fuscous macula from a similar smooth area at the apex which extends upon the cuneus at outer basal angle. Embolium alternated with pale and fuscous. Corium and cuenus bordering membrane heavily shaded with fuscous and with two blackish dots. These markings combine with the two heavy fuscous clouds, at apical third of hemelytra, to form a distinct "X" when viewed with the unaided eye. Membrane infuscated, paler at middle, with an irregular, pale, transverse band at apical third. Pale areas irrorate with fuscous. Cubitus surrounding apex of large areole, white. Legs pale yellow, femora mottled with fuscous; the fuscous areas enclosing many rounding pale spots of various sizes. Each tibia of each pair with three broad fuscous bands alternated with the pale ground color. Front and middle tarsi fuscous; the hind pair fusco-testaceous. Venter fuscous, paler at middle, rather thickly clothed with long, pale, soft hairs. Genital segment with triangular yellow spot in the middle

near base; fusco-testaceous in central area and apically. Right clasper similar in general form to that of *onustus* but relatively much stouter with dorsal thumb-like process nearly vertical and terete. A prominent, obtusely-angled hump arises just distad of the dorsal process, whereas in *onustus* the dorsal edge is almost linear from the thumb-like process to the distal end.

Female. Similar to male but slightly larger with markings less distinct. Length 6.56 mm., width 2.44 mm. Head: width 1.01 mm., vertex .40 mm. Rostrum 2.86 mm. (flexed) reaching or surpassing sixth ventral segment. Antennae: segment I, length 1.32 mm., II, 2.65 mm., III, 1.21 mm.; IV, .94 mm. Pronotum: length .98 mm., width at base 1.87 mm.

Preferred host plant: redwood, *Sequoia sempervirens* (Lamb.) Endl. Has also been taken on a hemlock, *Tsuga mertensiana* Sarg. planted on the author's property in Eureka. Single-brooded, nymphs appear in July.

Holotype (male): Eureka, Calif., IX.27.52. Allotype (female): same locality, IX.20.41. Paratypes: 6 males, 6 females, all from the type locality, Sept. 2nd to Oct. 9th. All collected by the author, the majority on redwood.

Named for the Yurok Indians, a tribe of the redwood region.

***Phytocoris sequoiae* n. sp.**

Allied to *taxodii* Kngt. but is distinguished by the shorter rostrum, wedge-shaped mark on corium, conspurcate membrane and form of male genital claspers.

Male. Length 6.4 mm., width 2.09 mm. Head: width .98 mm., vertex .25 mm. Rostrum, length 2.79 mm. reaching sixth ventral segment. Antennae: segment I, length 1.16 mm, II, 2.93 mm., III, 1.32 mm., IV, .96 mm. Pronotum: length .85 mm., width at base 1.52 mm.

Elongate, sub-parallel, widest at the cuneus. Eyes very large and prominent, extending to gula on sides of head, with vertex very narrow. Color testaceous, tinged with red, markings fuscous. Dorsum rather evenly set with yellow to black simple hairs, more yellow on margins of embolium and cuneus, intermixed with golden sericeous pubescence and a few white, scale-like hairs. Vague markings on vertex, front and sides of head, red. Head distinctly exserted, clothed with pale hairs, these longest on vertex and front. Basal joint of antenna testaceous, infuscated at apex, dotted with fuscous and red, and bearing many erect pale to fuscous bristles together with shorter recumbent ones. Second joint yellow, lightly

infuscated at tip, obscurely annulated with red and thickly clothed with short golden pubescence. Third and fourth joints yellow, infuscated, golden pilose. Rostrum testaceous yellow, basal joint tinged with red apically, distal joint infuscated.

Disc of pronotum testaceous, anteriorly and laterally tinged with red. Basal submarginal line fuscous, unbroken. Collar set with long bristles. At each anterior angle is an exceedingly long bristle (found only in recently-emerged, perfect examples) extending forward and outward beyond outer basal angle of eye. Propleura pale testaceous, obscurely dotted with red and with a median longitudinal fuscous vitta. Xyphus infuscated. Mesoscutum broadly exposed, testaceous tinged with red, lateral angles darker red, tip yellow. Sternum and pleura fuscous, basalar plate testaceous, infuscated at middle. Coxal area and ostiolar peritreme, pale.

Hemelytra testaceous with very little red except on cuneus. Embolium fuscous, paler at base and apex. Clavus brownish testaceous. Corium with inner apical angle infuscated and with a cuneate, posteriorly narrowing, fuscous mark, extending along claval suture from point opposite tip of scutellum to apex of clavus and with a lateral extension of fuscous coloration to embolar margin at basal third. Radius faintly red. Corium with translucent area at middle, a similar pale area at apex before the cuneus and a black spot bearing concolorous bristles on inner margin in a line with the fracture, followed by another at inner basal angle of cuneus. Cuneus orange-red, edged with yellow outwardly, inner margin and tip infuscated. Membrane lightly infumated, conspurcate with fuscous, the spots tending to coalesce basally and apically. Cubitus pale red.

Legs testaceous, upper surface of femora mottled with fuscous and red, the dark coloration on the hind pair enclosing many rounding pale spots of various sizes. Front tibiae triannulate with fuscous, middle and hind pair without rings. Venter testaceous mottled with fuscous and red, sparsely clothed with moderately long, pale hairs. Genital segment infuscated at base, paler laterally and apically. Tubercles absent. Right clasper very similar in form to that of *P. rubellus* Knigt. Left clasper of the type found in related forms but basally enlarged as in the species closest to *onustus*.

Female. Similar to male but elongate-oval, widest before the cuneus, eyes relatively smaller and the insect strongly suffused with rufous coloration. Length 6.50 mm., width 2 mm. Head width .91 mm., vertex .35 mm. Rostrum 2.85 mm. reaching or surpassing fifth ventral segment. Antennae: segment I, 1.27 mm., II, 2.78

mm., III, 1.32 mm., IV, .84 mm. Pronotum: length .84 mm., width at base 1.53 mm.

Host plant: redwood, *Sequoia sempervirens* (Lamb.) Endl. Single-brooded, nymphs appear in July.

Holotype (male): Eureka, Calif., IX.7.52. Allotype (female): same locality, X.1.49. Paratypes: 25 males, 25 females, Eureka, Aug. 28th to Nov. 6th. Specimens at hand from Shively and Grizzly Cr., Humboldt Co., Calif. All collected on the host plant by the author.

CICADELLIDAE

Idiocerus wiyotus n. sp.

Resembling *amoenus* V. D. but larger, with elongate antennal discs and extensive black markings in the male. Length 5.3–5.6 mm. Width 1.72–1.82 mm.

Face long as in *suturalis* Fh. with the genae nearly straight-margined and exceeded by the apically expanded clypellus. Clypeus convex. Male antennal discs elongate-oval, $2\frac{1}{2}$ times as long as wide. Female seventh sternite a little produced at middle, trisinate, relatively long.

Color of body and legs bright green in life, sometimes fading to yellow. Eyes dark brown. Pronotum and scutellum fulvous. Male face and vertex green, or yellowish in some dried specimens, with a brown stripe beneath either eye. Female face unicolorous, green or yellowish, the vertex fulvous. Male usually with four small black spots arranged in a forwardly arcuated semicircle on pronotum near anterior margin. Scutellum with heavy black triangles and two black median spots on disc. Black markings lacking in female, scutellar triangles being represented by a darkening of the ground color. Tip of scutellum green, elytra pale brownish, subhyaline, scutellar and sutural margins infuscated, white saddle-mark absent.

Host plant: redwood, *Sequoia sempervirens* (Lamb.) Endl.

Holotype (male): Shively, Humboldt Co., Calif., VIII.2.53. Allotype (female): same locality, VII.19.53. Paratypes: 22 males, 16 females from type locality, June 21st to Aug. 28th. All collected on the host plant by the author.

Named for the Wiyot Indians, a peaceful tribe of the Humboldt Bay area.

Idiocerus shivelyanus n. sp.

Related to *amabilis* Ball but slightly narrower and more highly ornamented with black, white, ivory and brown. Male antennal

discs long and narrow, female ovipositor distinctly exceeding the long narrow pygofers. Length 5.6–6 mm. Width 1.85–1.97 mm.

Male face broad, the genae laterally sinuate, shorter than clypellus. Clypeus broadly, shallowly, longitudinally excavated in middle, giving the face a concave appearance. Antennal discs long and pointed at each end, three times as long as wide. Female face convex. Seventh sternite slightly produced at middle, trisinate, not differing significantly from that of *wiyotus* n. sp. Ovipositor surpassing pygofers by $1\frac{1}{2}$ times its own width.

Color: male with body and legs bright green in life, fading to yellow. Vertex, a broad longitudinal stripe covering central depressed area of clypeus, clypellus, outer basal angles of jugae and tips of lorae, green in life, sometimes fading to yellow in dried specimens. Lorae, wide outer margins of clypeus, and ocellar area of frons, ivory. A wide stripe beneath each eye, a narrower pair on lorae bordering base of clypellus, a pair bordering green central area of clypeus and a median stripe on vertex and frons, brown. Disc of pronotum testaceous brown, anterior margin broadly green to yellow. Median longitudinal stripe, one large and a variable number of smaller spots on either side of disc and narrow posterior as well as lateral margins, sordid white. Scutellum testaceous with heavy black basal triangles and a round, black spot on either side of transverse groove. A short stripe on each side of median line at base, a lunate mark bordering transverse groove on either side anteriorly and a broad median stripe running from transverse groove to tip of scutellum, ivory. In some specimens, median, apical, ivory stripe is outlined with black or fuscous on either side. Elytra pale brown, translucent, with a white saddle-mark. Costal area concolorous, apices lightly infumated. Female face green to yellow. Vertex, centrally, and frons testaceous with a transverse whitish stripe from eye to eye across ocelli. A median longitudinal stripe on vertex and a round spot on each side, white. Scutellum with basal triangles dark brown, round spots on disc lacking. A broad stripe on either side of median line, anterior to transverse groove, and a single median stripe from transverse groove to apex of scutellum, ivory. Otherwise colored as in the male.

Host plant: redwood, *Sequoia sempervirens* (Lamb.) Endl.

Holotype (male): Shively, Humboldt Co., Calif., VIII.3.52. Allotype (female): same locality, VIII.31.52. Paratypes: 5 males, 11 females from the type locality, July 12th to Sept. 5th. All collected on the host plant by the author.

Idiocerus laribaeus n. sp.

Resembling *nervatus* V. D. but larger with large yellowish triangles on scutellum. Bright green in color rather than pallid. Male antennae banded with black, white and fuscous. Never occurs on willows although the latter grow abundantly in the type locality. Length 4.8–5.12 mm. Width 1.57–1.72 mm.

Clypeus convex, lateral margins not elevated. Vertex broadly arcuated, base and anterior margin parallel, as long in the middle as next to an eye. Hind margin of pronotum broadly angulated with a broadly v-shaped notch at middle, sides flaring and covering a large portion of the scutellar triangles. Each male antennal disc rather small, oval, on a very stout filament, the latter appreciably thickened at base and distally, constricted in the middle. Female seventh sternite slightly produced at middle, trisinate, scarcely distinguishable from that of *wiyotus* n. sp.

Color bright green. Eyes, tarsal claws and tip of rostrum, black, sharply contrasting. Scutellum with large yellow or dark green triangles. Dark markings of mesoscutum showing through the translucent surface of pronotum. Elytra greenish hyaline the commissural margins and nervures becoming infuscated apically in the male. Apices lightly infumated. Males with a fuscous dash on the first cross nervure before the discal cell, this lacking in the female. Filament of antennal disc with wide fuscous band near proximal end, distal portion, including pointed tip of disc, whitish. Disc black. Distal style, in the unbroken state longer than antennal disc, black proximally, whitish apically. Sutural margins in female concolorous, green throughout. Apical nervures not so strongly infuscated as in the male and apices less infumated.

Host plant: redwood, *Sequoia sempervirens* (Lamb.) Endl.

Holotype (male): Shively, Humboldt Co., Calif., IX.28.52. Allotype (female): same locality VIII.30.53. Paratypes: 3 males, 11 females from the type locality, Aug. 23rd to Nov. 26th. All collected on the host plant by the author.

Colladonus holmesi n. sp.

Resembling *aureolus* V. D. in the sharply angled vertex but very distinct in its saffron yellow and red color pattern. Length 4.8–6.1 mm. Width of head 1.29–1.49 mm.

Apex of head, viewed in profile, sharply conical, dorso-lateral margins of head including eyes forming nearly straight lines, converging at a little more than a right angle. Head and pronotum

subequal in width. Pronotum $1\frac{1}{2}$ times length of vertex. Vertex $1\frac{1}{2}$ times as wide as long. Pronotum twice as wide as long. Hind margin of vertex subcarinate, abruptly, distinctly, elevated, especially in the male. Combined male plates somewhat spoon-shaped, unusually broad, the lateral margins strongly sinuate and forming a distinct lobe near base on either side. Female seventh sternite with ligulate process rather constant in form, slightly constricted at middle, notched at tip and subequal to lateral lobes, the latter usually shallowly emarginate at apices.

Color croceous, the ventral surface intensely so. Eyes and ocelli dark red. Sides of clypeus tinted with red, sometimes forming short arcs of a deeper red on either side, visible through the red suffusion. Scutellum with basal triangles often indicated by a darkening of the ground color. Elytra translucent, of a uniform, iridescent, golden hue throughout. Hind wings pale but strongly iridescent. Females usually with two white chevrons along the commissure, these lacking in the males. Ovipositor often reddened on the sides.

Host plant: redwood, *Sequoia sempervirens* (Lamb.) Endl.

Holotype (male): Shively, Humboldt Co., Calif., IX.6.53. Allotype (female): same locality, VIII.28.53. Paratypes: 5 males, 8 females from the type locality, Aug. 9th to Oct. 5th. All collected on the host plant by the author.

***Colladonus eurekae* n. sp.**

Related to *holmesi* n. sp. but darker with a bluntly angled vertex and male plates without lobes. Brown and yellow with hind wings infumated. Length 4.65–5.95 mm. Width of head 1.23–1.51 mm.

Vertex short, bluntly rounded, twice as wide as long. Head slightly wider than pronotum. Pronotum twice as long as vertex. Width of pronotum about twice its length. Combined male plates spoon-shaped, broad at base, the lateral margins sinuate but not strongly lobed. Female seventh sternite with ligulate process characteristic in shape, wide and flat, broad at base, narrowing apically, scarcely notched at tip and usually longer than the lateral lobes.

Color: (males) face, vertex, pronotum, scutellum, legs, genital segments and often one or two preceding, yellow. Eyes dark brown. Triangles sometimes indicated on scutellum by a darkening of the ground color, at basal angles. Elytra iridescent, brownish, translucent, costal area concolorous, scutellar margins sometimes yellowish. Hind wings infumated, highly iridescent. Tergum and venter black with blue reflections, segments margined

with yellow, the latter variable in extent. Hind tibia with conspicuous dark line on inside. Females brownish yellow; without the dark line on hind tibia. Tergum and venter concolorous, segments margined with pale yellow behind, with often a pair of dark spots medially on third, fourth and fifth sternites, respectively, the last pair faint or lacking in some specimens.

Host plant: redwood, *Sequoia sempervirens* (Lamb.) Endl.

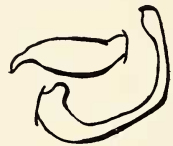
Holotype (male): Eureka, Calif., VIII.16.52. Allotype (female): same locality, X.5.53. Paratypes: 4 males from the type locality, 2 males from Shively, Calif., 16 females from type locality. Aug. 3rd to Oct. 22d. All collected on the host plant by the author.



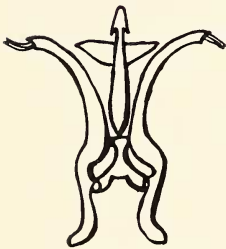
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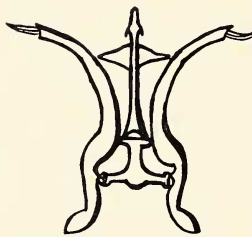
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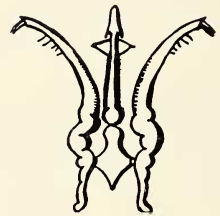
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Explanation of textfigures on page 118.

1: Caudal view of right (above) and left male genital claspers of *Dichrooscytus sequoiae* n. sp. 2: Lateral view of right (above) and left male genital claspers of *Phytocoris yuroki* n. sp. 3: Lateral view of right (above) and left male genital claspers of *Phytocoris sequoiae* n. sp. 4: Male styles and aedeagus (above) and female seventh sternite of *Idiocerus wiyotus* n. sp. 5: Male styles and aedeagus (above) and female seventh sternite of *Idiocerus shivelyanus* n. sp. 6: Male styles and aedeagus (above) and female seventh sternite of *Idiocerus laribacis* n. sp. 7: *Colladonus holmesi* n. sp. Male plates viewed from beneath and to one side, showing lateral margin of a plate. Female seventh sternite at right. 8: *Colladonus eurekae* n. sp. Male plates viewed from beneath and to one side, showing lateral margin of a plate. Female seventh sternite at right.

PUBLICATIONS RECEIVED

Insect Fact and Folklore, by Lucy Clausen. 194 pp., 45 illustrations. 6 × 9 ins., cloth bound. 1954. The Macmillan Co., New York, N. Y. (Price, \$3.50.)

The Water Beetles of Florida, by Frank N. Young. 238 pp., 31 textfigures. 7 × 10 ins., paper bound. 1954. University of Florida Press, Gainesville, Florida. (Price, \$6.00.)